Amendments

2. Please amend the claims as shown in the enclosed document. Claim 1 has been amended to recite the solid forms of the concentrate of the invention (supported in previous claims 2 and 39), as well as to recite the process by which the fluoropolymer particles coated with a flame retardant are obtained (supported for instance on page 8 paragraph 2; pages 12-13). Claims 25, 27-31, and 39 have been canceled to render the scope of protection more specific. No new matter has been added to the claims.

Claims Rejection – 35 USC § 103

3. Claims 1, 2, 4, 6-8, 25, 27-29 and 40 are rejected as being unpatentable over Kitahara et al. (US 6,503,988, hereafter "**Kitahara**"). The Applicant respectfully traverses the Examiner's rejection for the reasons specified below.

The Examiner alleges **Kitahara** discloses a flame retardant blended with the antidripping agent before being mixed with a flammable thermoplastic resin (C6/L15-30). The mixing may be in powder state, thereby forming a solid and homogenous concentrate. The antidripping agent is the polytetrafluoroethylene fine powder (C5/L15-19). In the Antidripping Performance Test II, the Examiner notes that the flame retardant is brominated epoxy resin, YDB-408 (C9/L15-34), and that the PTFE fine powder forms an aggregate (granule) with a mean particle diameter from 100 μm to 1,000 μm which is within the claimed range (C5/L4-5). The Examiner contends that it would have been obvious to choose a brominated epoxy resin as flame retardant as suggested by **Kitahara** (C5/L54-C6/L14).

Current claim 1 reads as follows (emphasizes added):

> "1. A solid homogeneous antidripping fluoropolymer concentrate, in the form of a bulk block or particles, said concentrate consisting of
>
> A) fluoropolymer granules having a flame retardant selected from brominated epoxy resins **melt-coated** thereon, said melt-coated fluoropolymer granules being obtained by
>
> i) melting the flame retardant into a molten phase;
> ii) mixing fluoropolymer granules into said molten phase; and
> iii) solidifying said molten phase to form said melt-coated fluoropolymer granules;
>
> and optionally
>
> B) additives selected from the group consisting of ultraviolet and light stabilizers, UV screeners, UV absorbers, release agents, lubricants, colorants, plasticizers, fillers, blowing agents, heat stabilizers, antioxidants, reinforcement additives, impact modifiers, and processing aids."

The term "melt-coated" is bolded for emphasis. The bolded and underlined language was added to emphasize what is meant by coated and how the coating occurs.

Amended claim 1 is a product-by-process claim. According to the law, patentability of product-by-process claims is ruled by the following principles (emphasizes added):

> [E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself." *In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *Thorpe*, 777 F.2d at 697. **However, any structure or property implied by process steps must be considered when assessing the patentability of a product-by-process claim over the prior art**. *In re Garnero*, 412 F.2d 276, 279 (CCPA 1979). . . . The Examiner must supply a "sound basis for believing that the products of the applicant and the prior art are the same" before "the burden of showing that they are not" is shifted to the applicant. *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990).
>
> This quotation is from the Board of Patent Appeals and Interferences' *Ex parte Iwasa et al.* decision (July 28, 2009).

The Applicant respectfully submits the fluoropolymer concentrate as recited in amended claim 1 is clearly distinct from **Kitahara's** dry granular mixture, both by its structure and its properties.

Structurally speaking, the process by which the concentrate of the present invention is obtained involves mixing the solid fluoropolymer granules (component A) in a molten phase of a flame retardant (component B) and by further solidifying the fire retardant, thereby entrapping the fluoropolymer granules in a continuous phase of flame retardant. A simple microscope analysis would reveal the structural difference between the dry, non-melted mixture of **Kitahara** and the melt-coated granules obtained in the present invention: the flame retardant of the present concentrate is intimately associated with the fluoropolymer granules to form a melt-coating, *i.e.* a continuous phase which literally envelops the granules.

Conversely, in **Kitahara** no continuous phase is formed, the PTFE granules being simply mixed with the flame retardant granules, the two types contacting each other only in a point wise manner. There is no single hint in **Kitahara** that would suggest the person skilled in the art to mix the fluoropolymers granules in a molten phase of flame retardant and to solidify this mixture to obtain a bulk block or particles of fluoropolymer granules coated by a flame retardant.

In term of physical and chemical properties, the fluoropolymer concentrate of the invention discloses several advantages over the mixture of **Kitahara,** an essential one being that various species of fluoropolymer may be used. Conversely, the man skilled in

the art reading **Kitahara** would be restricted to a very specific species of fluoropolymer, namely the one as disclosed in claim 1 of said publication:

> 1. A polytetrafluorethylene fine powder excellent in powder flowability which comprises fine primary particles having a mean particle diameter of 0.05 to 1 μm, an apparent density of 0.52 to 0.70 g/ml, a standard specific gravity (SSG) of 2.1:4 to 2.23, and a secondary mean particle diameter of 100 to 1000 μm.

This very specific PTFE of **Kitahara** is the core of his invention, and is provided to solve the flowability issues observed with common PTFE, as mentioned at col. 2, lines 26-40 (emphasizes added):

> In industrial manufacturing, economy, productivity and working efficiency must be taken into consideration. In order to uniformly disperse polytetrafluoroethylene in a desired concentration, it is desirable that polytetrafluoroethylene is supplied individually by an automatic weight or volumetric counting feeder. However, due to poor powder flowability of conventional polytetrafluoroethylene, the jamming of powders has occurred in automatic weight or volumetric counting feeders, so that working efficiency is significantly reduced. **Accordingly, it is an object of the present invention to provide PTFE fine powders excellent in powder flowability** which are used as molding materials, resin additive, or the like.

Conversely, the fluoropolymer concentrate of the invention may comprise a broad selection of fluoropolymer available in the market in combination with various flame retardant selected from brominated epoxy resins, in order to confer, when added to the thermoplastic resin, the required flame retardant and antidripping properties in compliance with the V-0 flammability test standard requirement. Clear advantages of the fluoropolymer concentrate of the invention over commercial ready-to-use PTFE concentrate can be assessed by reading Examples 5 to 13 of the present application. Without being bound to any specific theory, it is believed that the intimate contact between the fluoropolymer granules and the flame retardant structure of the concentrate, enables the fluoropolymer to be evenly dispersed in the thermoplastic resin. Therefore, a man skilled in the art would understand that contrary to **Kitahara,** it is not the flowability of one kind of fluoropolymer powder which is important, but modifying the surface properties of any kind of fluoropolymer powders to prevent sticking of the particles into aggregates. In fact, **Kitahara** teaches against the use of conventional fluoropolymer powders and does not provide any technical solution to improve dispersal of the same when admixed to a thermoplastic resin.

To summarize, the Applicant contends that the presently submitted claims should be acknowledged as patentable over **Kitahara** at least for the following reasons:

1) The manufacturing steps recited in the claims provide a distinctive structural characteristic to the product of the invention, namely a continuous phase of fire retardant entrapping the fluoropolymer granules and forming a coat; and

2) There is no single hint in **Kitahara** that would suggest the person skilled in the art to mix fluoropolymers granules in a molten phase of flame retardant and to solidify this mixture to obtain a bulk block or particles of fluoropolymer granules melt-coated by a flame retardant;

3) **Kitahara** teaches against the use of conventional fluoropolymer powders and provides a specific kind of fluoropolymer granules having improved flowability characteristics; conversely, the present invention enables the use of a broad range of conventional fluoropolymer granules and allow them to be evenly dispersed throughout a thermoplastic resin upon admixture; and

4) there is no single hint in **Kitahara** that would teach or suggest a person skilled in the art how to improve the dispersal of conventional fluoropolymer powders in a thermoplastic resin.

Therefore, it would be clear for a skilled person in the art that the fluoropolymer concentrate as recited in claim 1 is distinct from the mixture of **Kitahara** both in structure and in properties.

Therefore, claim 1 as well as all the claims dependent therefrom should be acknowledged as novel and non-obvious over **Kitahara**.

4. The Examiner further rejects claims 9, 10, 12, 13, 30, and 31 as being unpatentable over **Kitahara** et al. (US 6,503,988) as evidenced by Kugdo, YDB-408, Brominated Epoxy Resin.

As the above-objected claims are all directly or indirectly dependent from claim 1 which has been demonstrated as non-obvious over **Kitahara**, it is submitted that claims 9, 10, 12 and 13 (claims 30 and 31 being now canceled) should be also acknowledged as non-obvious over the cited prior art.

4. The Examiner further rejects claim 39 as being unpatentable over **Kitahara** et al. (US 6,503,988) in view of **Georlette** et al. (US 4,849,134).

Claim 39 has been deleted thereby rendering the Examiner's objection moot.

Conclusion

5. As it is believed that the rejections set forth in the Office Action have been fully addressed by the amendments and the above explanations, favorable reconsideration and allowance are earnestly solicited.

Respectfully submitted

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